

958.547



## PATENT SPECIFICATION

DRAWINGS ATTACHED

958.547

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## COMPLETE SPECIFICATION

## Bearing

We, FICHTEL & SACHS A.G., a German Body Corporate, of Schweinfurt am Main, Germany, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to a bearing with a rolling element retainer or cage and packing rings, more particularly a cup and cone ball or roller bearing for bicycle and motorcycle hubs.

Bicycle and motorcycle hubs are generally provided with cup and cone bearings which accept the axial pressure that occurs and which are adjustable. In practice, it is always difficult to seal the bearings against the penetration of water and dirt and also against the escape of lubricant, particularly in the case of hubs comprising brakes, since when the brake is operated the hub is subjected to a certain amount of heating. In practice, either labyrinth packings or felt packings are used for these purposes, but they only partly or temporarily achieve the desired object. A packing using rubber, such as is conveniently used in motor vehicle construction, is not possible in the case of bicycle and motor cycle hubs since the friction which occurs is too great and the overall height is too wide. These packings are also too expensive.

A packing system for bearings is also known wherein the packing is fixed on a sheet metal ring and this sheet metal ring at the same time carries projections to which the two halves of the sheet metal ball retainer are riveted. With this arrangement it is very disadvantageous that when the packing is damaged not only the ball retainer and the packing have to be exchanged but the balls have to be removed. In order to use the balls again, the cage and packing have to be dismantled, which is a very expensive and intricate operation. The manufacture of the cage and also the manufacture of the packing are, furthermore, complicated. The packing must

be fixed on a sheet metal ring and only then is the ball retainer welded to the projections on the sheet metal ring. Owing to this complicated construction, this arrangement is particularly unsuitable for relatively small bearings.

In order to take this into account, according to the invention there is provided a bearing having a rolling element retainer and a packing ring, wherein the packing ring is made from a synthetic plastics material and is secured to the rolling element retainer by an adhesive.

The packing ring and the rolling element retainer can be replaced when necessary by a new packing ring and retainer without any need to fit new balls, for the balls can easily be removed from the removed ball retainer. Vibrations which may occur with known ball retainers are at least greatly reduced by connecting the retainer to the packing ring. The wear on the ball retainer is thereby reduced.

One embodiment of the invention is illustrated in the accompanying drawings, wherein:

Figure 1 is a fragmentary longitudinal sectional view through a bearing having a rolling element retainer and packing ring according to the invention;

Figure 2 shows, partly in section, a rear wheel hub for bicycles, which is equipped with rolling element retainers and packing rings as in Figure 1; and

Figures 3 and 4 are respectively a detail sectional view and an end view of a packing ring indicating the position of the rolling element retainer.

Figure 1 shows a dismantlable ball bearing wherein 1 designates the inner race, 2 the outer race, and 3 a rolling element. The balls are guided by a ball retainer 6 made, for example of metal. The packing ring 4 is made of a synthetic plastics material and is secured to the ball retainer 6 by adhesive.

Figure 2 shows the mounting of the rear wheel hub 8 of a bicycle, three bearings being

provided. The balls 3 of each of the three bearings are guided, and sealed from the outside, by the ring 4 and ball retainer 6 as in Figure 1. All the bearings in this case are provided with cover plates 7, in order to prevent the penetration of foreign matter which may damage the packing.

The inner and outer edges of the packing ring 4 which is secured to the ball retainer 6 slide on the inner and outer races 1, 2 of the bearing 3 and thus prevent the penetration of moisture or dust from the outside and also prevent the escape of lubricant from the interior of the hub. In the embodiment shown in Figure 1 the inner and outer edges of the ring run in grooves 9 provided in the races. Only one such groove may be provided if required.

As shown in Figures 3 and 4 the rolling element retainer 6 may consist of bowed members whose limbs are held together by

the back portions 10. The ring 4 is here secured to the back portions 10 by an adhesive which is generally a synthetic plastics material.

WHAT WE CLAIM IS:—

1. A bearing having a rolling element retainer and a packing ring, wherein the packing ring is made from a synthetic plastics material and is secured to the rolling element retainer by an adhesive.

2. A bearing according to claim 1, wherein the packing ring runs in a groove in at least one of the bearing races.

3. A bearing as claimed in claim 1 substantially as described with references to the accompanying drawings.

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Fig. 1

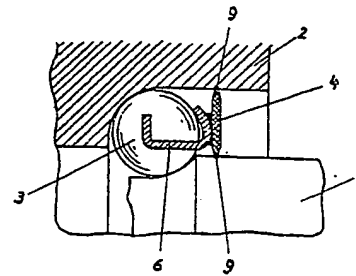
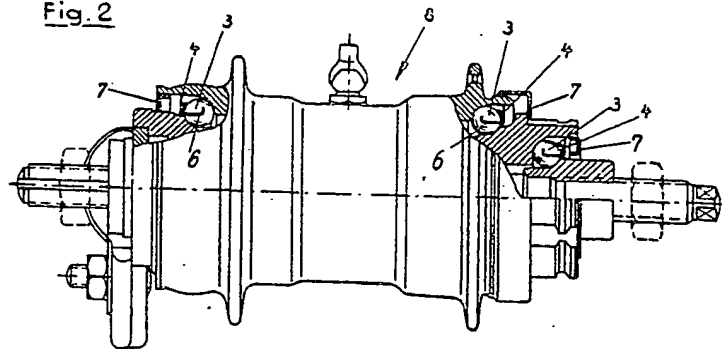


Fig. 2



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COMPLETE SPECIFICATION

2 SHEETS

*This drawing is a reproduction of  
the Original on a reduced scale  
Sheets 1 & 2*

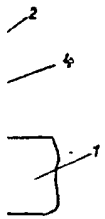


Fig. 4.

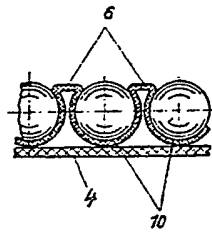


Fig. 3.

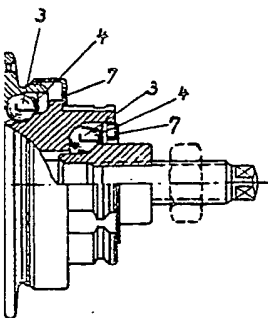
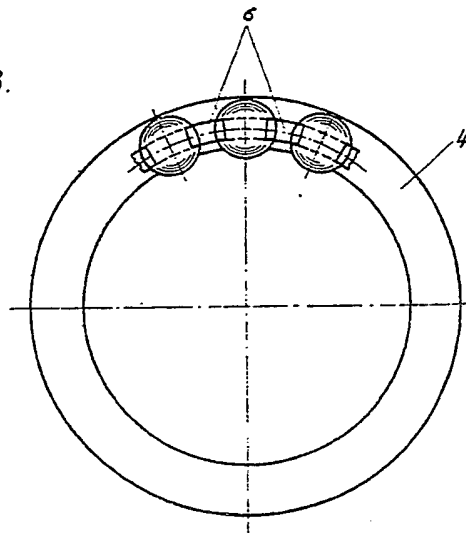


Fig. 1

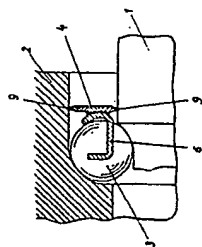


Fig. 4.

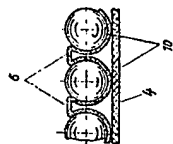


Fig. 3.

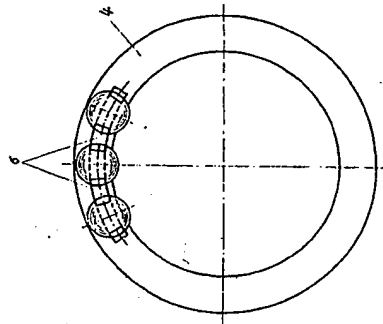
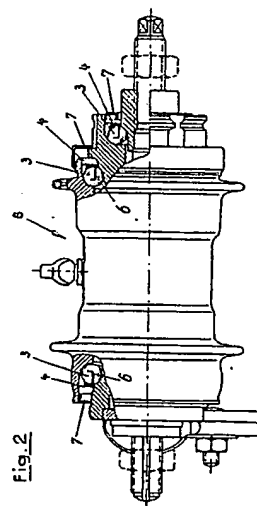


Fig. 2



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